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SEQUENCE LISTING

<110> Anderson et al.

<120> CRYSTAL STRUCTURE OF GLUTAMATE RACEMASE (MURL)

<130> ASZD-P01-007

<140> Not Assigned

<141> Filed Herewith

<150> 60/435,272

<151> 2002-12-20

<150> 60/435,167

<151> 2002-12-20

<150> 60/435,087

<151> 2002-12-20

<150> 60/435,527

<151> 2002-12-20

<160> 76

<170> PatentIn version 3.2

<210> 1

<211> 768

<212> DNA

<213> H. pylori

<221> CDS

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SEQUENCE LISTING.txt

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Lys Ser Leu Leu Lys Ala Arg Leu Phe Asp Glu Ile Ile Tyr Tyr Gly
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gat agc gct aga gtg cct tat ggc act aaa gac ccc acc acg atc aag 144
Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

caa ttt ggc tta gag gct ttg gat ttt ttc aaa ccg cat gag att gaa 192
Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Glu Ile Glu
50 55 60

tta ttg att gtg gca tgc aac acc gcg agc gct ctg gct tta gaa gag 240
Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

atg caa aag tat tct aaa atc cct att gtg ggc gtg att gag cca agc 288
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85 90 95

att tta gcg atc aag cgg caa gtg gaa gat aaa aac gcc cct att tta 336
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gtg cta ggg aca aaa gcg acg att caa tcc aac gcc tat gac aac gcc 384
Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

ctg aaa caa caa ggc tat ttg aac att tcg cat tta gct act tct ctt 432
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SEQUENCE LISTING.txt

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Thr Cys Met His Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
165 170 175

atc att tta ggt tgc acg cat ttt ccc tta atc gct caa aaa att gag 576
Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
180 185 190

ggc tat ttc atg ggg cat ttt gcc ctt cca acg ccc ccc cta ctc atc 624
Gly Tyr Phe Met Gly His Phe Ala Leu Pro Thr Pro Pro Leu Leu Ile
195 200 205

cat tcg ggc gat gct att gta gaa tat ttg caa caa aaa tac gcc ctt 672
His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

aaa aac aat gca tgc aca ttc cct aaa gtg gaa ttt cat gcg agc ggc 720
Lys Asn Asn Ala Cys Thr Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

gat gtg atc tgg cta gaa aga caa gct aaa gaa tgg ctc aaa ttg taa 768
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SEQUENCE LISTING.txt

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Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
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Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Glu Ile Glu
 50 55 60

Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

Met Gln Lys Tyr Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
 85 90 95

Ile Leu Ala Ile Lys Arg Gln Val Glu Asp Lys Asn Ala Pro Ile Leu
 100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
 115 120 125

Leu Lys Gln Gln Gly Tyr Leu Asn Ile Ser His Leu Ala Thr Ser Leu
 130 135 140

Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu

SEQUENCE LISTING.txt

145 150 155 160

Thr Cys Met His Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
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Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
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Gly Tyr Phe Met Gly His Phe Ala Leu Pro Thr Pro Pro Leu Leu Ile
 195 200 205

His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
 210 215 220

Lys Asn Asn Ala Cys Thr Phe Pro Lys Val Glu Phe His Ala Ser Gly
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SEQUENCE LISTING.txt

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gat agc gct aga gtg cct tat ggc act aaa gac ccc act acg atc aag 144
Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

caa ttt ggc tta gag gct ttg gat ttt ttc aaa cca cac cag att gaa 192
Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Glu
50 55 60

tta ttg att gtg gca tgc aac acc gca agc gct ctg gct tta gaa gag 240
Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

atg caa aag cat tcc aaa atc cct att gtg ggc gtg att gag cca agc 288
Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

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gtg cta ggg aca aaa gcg acg att caa tcc aac gct tat gac aac gcc 384
Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

ctg aaa caa caa ggc tat ttg aat gtt tcg cat tta gcc act tct ctt 432
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Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
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att att tta ggt tgc acg cat ttt ccc ttg att gct caa aaa att gag 576
Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
180 185 190

ggc tat ttc atg gag cat ttt gcc ctt cca acg ccc ccc cta ctc atc 624
Gly Tyr Phe Met Glu His Phe Ala Leu Pro Thr Pro Pro Leu Leu Ile
195 200 205

cat tcg ggc gat gct att gta gaa tat ttg cag caa aaa tac gcc ctt 672
His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

aaa aac aat gca cac gca ttc cct aaa gtg gaa ttt cat gcg agc ggc 720
Lys Asn Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

gat gtg atc tgg cta gaa aga caa gct aaa gaa tgg ctc aaa ttg taa 768
Asp Val Ile Trp Leu Glu Arg Gln Ala Lys Glu Trp Leu Lys Leu
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SEQUENCE LISTING.txt

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20 25 30

Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
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Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Glu
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Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
130 135 140

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SEQUENCE LISTING.txt

Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Lys Ile Leu Pro Glu Val
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Gly Tyr Phe Met Glu His Phe Ala Leu Pro Thr Pro Pro Leu Leu Ile
195 200 205

His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

Lys Asn Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
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SEQUENCE LISTING.txt

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Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys				
35	40	45		
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Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Glu				
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Ile Leu Ala Ile Lys Arg Gln Val Lys Asp Lys Asn Ala Pro Ile Leu				
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115	120	125		
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Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu				
130	135	140		
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SEQUENCE LISTING.txt

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	180	185	190	
ggc tat ttt atg gag cat ttt gcc ctt tca aca ccc ccc cta ctc atc				624
Gly Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile				
	195	200	205	
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SEQUENCE LISTING.txt

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Ile Leu Ala Ile Lys Arg Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
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Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
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SEQUENCE LISTING.txt

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Gly Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile
195 200 205

His Ser Gly Asp Ala Ile Val Gly Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
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SEQUENCE LISTING.txt

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 Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
 35 40 45

caa ttt ggc tta gag gct ttg gat ttt ttc aaa ccg cac cag att aaa 192
 Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Lys
 50 55 60

tta ttg att gtg gca tgc aac aca gcg agc gct cta gct tta gaa gag 240
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atg caa aag cat tcc aaa atc cct att gtg ggc gtg att gag cca agc 288
 Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
 85 90 95

att tta gcg atc aag caa caa gta aaa gat aaa aac gcc cct att tta 336
 Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
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 Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
 115 120 125

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 Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
 130 135 140

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SEQUENCE LISTING.txt

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 Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
 180 185 190

ggc tat ttt atg gag cat ttt gcc ctt tca acg ccc ccc cta ctc atc 624
 Gly Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile
 195 200 205

cat tcg ggc gat gct att gtg gaa tat ttg cag caa aaa tac gcc ctt 672
 His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
 210 215 220

aag aaa aat gca cac gca ttc cct aaa gtg gaa ttt cat gcg agc ggc 720
 Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
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65 70 75 80

Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
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Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
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SEQUENCE LISTING.txt

Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Lys Ile Leu Pro Glu Val
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Gly Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile
195 200 205

His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
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SEQUENCE LISTING.txt

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 Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
 35 40 45

caa ttt ggc tta gag gct ttg gat ttt ttc aaa ccg cac cag att gga 192
 Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Gly
 50 55 60

tta ttg att gtg gca tgc aac aca gcg agc gct cta gct tta gaa gag 240
 Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
 65 70 75 80

atg caa aag cat tcc aaa atc cct att gtg ggc gtg att gaa cca agc 288
 Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
 85 90 95

att tta gcg atc aag caa caa gta aaa gat aaa aac gcc tct att ttg 336
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 100 105 110

gtg cta ggg aca aaa gcg acg atc caa tcc aac gct tat gac aac gcc 384
 Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
 115 120 125

ctg aaa caa caa ggc tat ttg aat gtt tcg cat tta gcc act tct ctt 432
 Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
 130 135 140

ttt gtg cct ttg att gaa gaa agt att tta gag ggc gaa ttg cta gaa 480
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SEQUENCE LISTING.txt

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gtt att tta ggt tgc acg cat ttt ccc tta atc gct caa aaa att gag 576
 Val Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
 180 185 190

ggc tat ttt atg gag cat ttt gcc ctt tca acg ccc ccc cta ctc atc 624
 Gly Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile
 195 200 205

cat tcg ggc gat gct att gtg gaa tat ttg cag caa aaa tac gcc ctt 672
 His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
 210 215 220

aaa aaa aat gca cac gca ttc cct aaa gtg gaa ttt cat gcg agt ggc 720
 Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
 225 230 235 240

gat gtg atc tgg cta gaa aaa cag gct aaa gaa tgg ctc aaa ttg taa 768
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SEQUENCE LISTING.txt

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65 70 75 80

Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Ser Ile Leu
100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
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Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
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Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val

SEQUENCE LISTING.txt

165 170 175

Val Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
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Gly Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile
195 200 205

His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
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1 5 10 15

aaa agc ctt tta aaa gcg caa att ttt gat gaa atc atc tat tat ggc 96

SEQUENCE LISTING.txt

Lys Ser Leu Leu Lys Ala Gln Ile Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

gat agc gct aga gtg cct tat ggc act aaa gac ccc acc acg atc aag 144
Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

caa ttt ggc tta gag gct ttg gat ttt ttc aaa ccg cac cag att aaa 192
Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Lys
50 55 60

tta ttg att gtg gca tgc aac aca gcg agc gct cta gct tta gaa gag 240
Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

atg caa aag cat tcc aaa atc cct att gtg ggc gtg att gag cca agc 288
Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

att tta gcg atc aag caa caa gta aaa gat aaa aac gcc cct att tta 336
Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

gtg cta ggg aca aaa gcg acg att caa tct aac gct tat gac aac gcc 384
Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

cta aaa caa caa ggc tat ttg aac att tcg cat tta gcc act tct ctt 432
Leu Lys Gln Gln Gly Tyr Leu Asn Ile Ser His Leu Ala Thr Ser Leu
130 135 140

ttt gtg cct ttg att gaa gaa agt att tta gag ggc gaa ttg tta gag 480
Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

act tgc atg cgt tat tat ttc act ccc tta aag att tta cct gaa gtg 528

SEQUENCE LISTING.txt

Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Lys Ile Leu Pro Glu Val
165 170 175

atc att tta ggt tgc acg cat ttt ccc ttg atc gct caa aaa att gag 576
Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
180 185 190

ggc tat ttt atg gag cat ttt gcc ctt cca acc ccc ccc cta ctc atc 624
Gly Tyr Phe Met Glu His Phe Ala Leu Pro Thr Pro Pro Leu Leu Ile
195 200 205

cat tcg ggc gat gct att gta gaa tat ttg cag caa aaa tac acc ctt 672
His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Thr Leu
210 215 220

aag aaa aat gca cac gca ttc cct aaa gtg gaa ttt cat gcg agt ggc 720
Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

gat gtg gtt tgg cta gaa aaa cag gct aa 749
Asp Val Val Trp Leu Glu Lys Gln Ala
245

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<211> 249
<212> PRT
<213> H. pylori

<400> 12

Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
1 5 10 15

Lys Ser Leu Leu Lys Ala Gln Ile Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

SEQUENCE LISTING.txt

Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Lys
50 55 60

Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

Leu Lys Gln Gln Gly Tyr Leu Asn Ile Ser His Leu Ala Thr Ser Leu
130 135 140

Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Lys Ile Leu Pro Glu Val
165 170 175

SEQUENCE LISTING.txt

Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
180 185 190

Gly Tyr Phe Met Glu His Phe Ala Leu Pro Thr Pro Pro Leu Leu Ile
195 200 205

His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Thr Leu
210 215 220

Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

Asp Val Val Trp Leu Glu Lys Gln Ala
245

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<211> 768

<212> DNA

<213> H. pylori

<221> CDS

<222> (1)..(768)

<400> 13

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Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
1 5 10 15

aaa agc ctt tta aaa gcg caa att ttt gat gaa atc atc tat tat ggc 96
Lys Ser Leu Leu Lys Ala Gln Ile Phe Asp Glu Ile Ile Tyr Tyr Gly

SEQUENCE LISTING.txt

20

25

30

gat agt gct aga gtg cct tat ggc act aaa gac ccc acc acg atc aag 144
Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

caa ttt ggc tta gag gct ttg gat ttt ttc aaa ccg cac cag att gga 192
Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Gly
50 55 60

tta ttg att gtg gca tgc aac aca gcg agc gct cta gct tta gaa gag 240
Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

atg caa aag cat tcc aaa atc cct att gtg ggc gtg att gag cca agc 288
Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

att tta gcg atc aaa caa caa gtg aaa gat aaa aac gct cct att tta 336
Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

gtg cta ggg aca aaa gcg acg att caa tct aac gct tac gat aac gcc 384
Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

ctg aaa caa caa ggc tat ttg aat gtt tcg cat tta gcc act tct ctt 432
Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
130 135 140

ttt gtg cct ttg att gaa gaa aat att tta gag ggc gaa ttg cta gaa 480
Phe Val Pro Leu Ile Glu Glu Asn Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

act tgc atg cgt tat tat ttc act ccc tta aag att tta cct gaa gtg 528
Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Lys Ile Leu Pro Glu Val

SEQUENCE LISTING.txt

165 170 175

atc att tta ggt tgc acg cat ttt ccc ttg atc gct caa aaa att gag 576
Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu

180 185 190

ggc tat ttt atg gag cat ttt gcc ctt tta acg ccc ccc cta ctc atc 624
Gly Tyr Phe Met Glu His Phe Ala Leu Leu Thr Pro Pro Leu Leu Ile

195 200 205

cat tct ggc gat gct att gta gaa tat ttg caa caa aaa tac gcc ctt 672
His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu

210 215 220

aag aaa aat gca cac tca ttc cct aaa gtg gaa ttt cat gcg agc ggc 720
Lys Lys Asn Ala His Ser Phe Pro Lys Val Glu Phe His Ala Ser Gly

225 230 235 240

gat gtg atc tgg cta gaa aaa cag gct aaa gaa tgg ctc aaa ttg taa 768
Asp Val Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu

245 250 255

<210> 14

<211> 255

<212> PRT

<213> H. pylori

<400> 14

Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu

1 5 10 15

Lys Ser Leu Leu Lys Ala Gln Ile Phe Asp Glu Ile Ile Tyr Tyr Gly

20 25 30

SEQUENCE LISTING.txt

Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Gly
50 55 60

Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
130 135 140

Phe Val Pro Leu Ile Glu Glu Asn Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Lys Ile Leu Pro Glu Val
165 170 175

SEQUENCE LISTING.txt

Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
180 185 190

Gly Tyr Phe Met Glu His Phe Ala Leu Leu Thr Pro Pro Leu Leu Ile
195 200 205

His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

Lys Lys Asn Ala His Ser Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

Asp Val Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
245 250 255

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<212> DNA

<213> H. pylori

<221> CDS

<222> (1)..(768)

<400> 15

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Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
1 5 10 15

aaa agc ctt tta aaa gcg caa att ttt gat gaa atc atc tat tat ggc 96
Lys Ser Leu Leu Lys Ala Gln Ile Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

SEQUENCE LISTING.txt

gat agc gct aga gtg cct tat ggc act aaa gac ccc acc acg atc aag 144
 Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
 35 40 45

caa ttt ggc tta gag gct ttg gat ttt ttc aaa ccg cac cag att gaa 192
 Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Glu
 50 55 60

tta ttg att gtg gca tgc aac aca gcg agc gct cta gct tta gaa gag 240
 Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
 65 70 75 80

atg caa aag cat tcc aaa atc cct att gtg ggc gtg att gaa cca agc 288
 Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
 85 90 95

att tta gcg atc aaa caa caa gtg aaa gat aaa aac gct cct att tta 336
 Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
 100 105 110

gtg cta ggg aca aaa gcg acg att caa tct aac gct tac gac aac gcc 384
 Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
 115 120 125

ctg aaa caa caa ggc tat ttg aat gtt tcg cat tta gcc act tct ctt 432
 Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
 130 135 140

ttt gtg cct ttg att gaa gaa agt att tta gag ggc gaa ttg cta gaa 480
 Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
 145 150 155 160

act tgc atg cgt tat tat ttc act ccc tta aag att tta ccc aaa gta 528
 Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Lys Ile Leu Pro Lys Val
 165 170 175

SEQUENCE LISTING.txt

atc att tta ggt tgc acg cat ttt ccc ttg atc gct cac caa att aag 576
Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala His Gln Ile Lys
180 185 190

ggc tat ttt atg ggg cat ttt gcc ctt tca acg ccc ccc cta ctc atc 624
Gly Tyr Phe Met Gly His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile
195 200 205

cat tcg ggc gat gct att gtg gga tat ttg caa caa aaa tac gcc ctt 672
His Ser Gly Asp Ala Ile Val Gly Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

aag aaa aat gca cac gca ttc cct aaa gtg gaa ttt cat gcg agc ggc 720
Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

gat gtg atc tgg cta gaa aaa cag gct aaa gaa tgg ctc aaa ttg taa 768
Asp Val Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
245 250 255

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<211> 255
<212> PRT
<213> H. pylori

<400> 16

Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
1 5 10 15

Lys Ser Leu Leu Lys Ala Gln Ile Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

SEQUENCE LISTING.txt

Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Glu
50 55 60

Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
130 135 140

Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Lys Ile Leu Pro Lys Val
165 170 175

SEQUENCE LISTING.txt

Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala His Gln Ile Lys
180 185 190

Gly Tyr Phe Met Gly His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile
195 200 205

His Ser Gly Asp Ala Ile Val Gly Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

Asp Val Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
245 250 255

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<211> 768

<212> DNA

<213> H. pylori

<221> CDS

<222> (1)..(768)

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Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
1 5 10 15

aaa agc ctt tta aaa gcg caa tta ttt gat gaa atc atc tat tat ggc 96
Lys Ser Leu Leu Lys Ala Gln Leu Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

SEQUENCE LISTING.txt

gat agc gct aga gtg cct tat ggc act aaa gac ccc acc acg atc aag 144
 Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
 35 40 45

caa ttt ggc tta gag gct ttg gat ttt ttc aaa ccg cac cag att aaa 192
 Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Lys
 50 55 60

tta ttg att gtg gca tgc aac aca gcg agt gct ctg gct tta gaa gag 240
 Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
 65 70 75 80

atg caa aag cat tcc aaa atc cct att gtg ggc gtg att gag cca agc 288
 Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
 85 90 95

att tta gcg atc aaa caa cag gta aaa gat aaa aac gcc ccc att tta 336
 Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
 100 105 110

gtg cta ggc aca aaa gcg acg att caa tct aac gct tac gat aac gct 384
 Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
 115 120 125

ctg aaa cga caa ggc tat ttg aac gtt tcg cat tta gcc act tcc ctt 432
 Leu Lys Arg Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
 130 135 140

ttt gtg cct ttg att gaa gaa agt att tta gag ggc gaa ttg tta gaa 480
 Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
 145 150 155 160

act tgc atg cgt tat tat ttc act ccc tta aag att tta cct gaa gtg 528
 Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Lys Ile Leu Pro Glu Val
 165 170 175

SEQUENCE LISTING.txt

atc att tta ggt tgt acg cat ttt ccc ttg atc gct caa aaa att gag 576
 Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
 180 185 190

ggc tat ttt atg gaa cat ttt gcc ttt cca acg ccc ccc cta ctc atc 624
 Gly Tyr Phe Met Glu His Phe Ala Phe Pro Thr Pro Pro Leu Leu Ile
 195 200 205

cat tcg ggc gat gct att gtg gaa tat ttg cag caa aaa tac gcc ctt 672
 His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
 210 215 220

aag aaa aat gca cac gca tta cct aaa gtg gaa ttt cat gcg agc ggc 720
 Lys Lys Asn Ala His Ala Leu Pro Lys Val Glu Phe His Ala Ser Gly
 225 230 235 240

gat gtg atc tgg cta gaa aaa caa gct aaa gaa tgg ctc aaa ttg taa 768
 Asp Val Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
 245 250 255

<210> 18
 <211> 255
 <212> PRT
 <213> H. pylori

<400> 18

Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
 1 5 10 15

Lys Ser Leu Leu Lys Ala Gln Leu Phe Asp Glu Ile Ile Tyr Tyr Gly
 20 25 30

Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys

SEQUENCE LISTING.txt

35

40

45

Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Lys
50 55 60

Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

Leu Lys Arg Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
130 135 140

Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Lys Ile Leu Pro Glu Val
165 170 175

Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu

SEQUENCE LISTING.txt

180

185

190

Gly Tyr Phe Met Glu His Phe Ala Phe Pro Thr Pro Pro Leu Leu Ile
195 200 205

His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

Lys Lys Asn Ala His Ala Leu Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

Asp Val Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
245 250 255

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<211> 768

<212> DNA

<213> H. pylori

<221> CDS

<222> (1)..(768)

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Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
1 5 10 15

aaa agc ctt tta aaa gcg caa tta ttt gat gaa atc atc tat tat ggc 96
Lys Ser Leu Leu Lys Ala Gln Leu Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

gat agc gct aga gtg cct tat ggc act aaa gac ccc acc acg atc aag 144

SEQUENCE LISTING.txt

Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

caa ttt ggc tta gag gct ttg gat ttt ttc aaa ccg cac cag att aaa 192
Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Lys
50 55 60

tta ttg att gtg gca tgc aac aca gcg agc gct cta gct tta gaa gag 240
Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

atg caa aag cat tcc aaa atc cct att gtg ggc gtg att gag cca agc 288
Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

att tta gcg atc aaa caa caa gta aag gat aaa aac gcc ccc att tta 336
Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

gtg cta ggg aca aaa gcg acg att caa tct aac gct tac gat aac gct 384
Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

ctg aaa caa caa ggc tat ttg aac gtt tcg cat tta gcc act tct ctt 432
Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
130 135 140

ttt gtg cct ttg att gaa gaa aat att tta gag ggc gaa ttg tta gaa 480
Phe Val Pro Leu Ile Glu Glu Asn Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

act tgc atg cgt tat tat ttc act ccc tta gag att tta cct gaa gtg 528
Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
165 170 175

atc att tta ggt tgc acg cat ttt ccc tta atc gct caa aaa att gag 576

SEQUENCE LISTING.txt

Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
180 185 190

ggc tat ttc atg ggg cat ttt gcc ctt cca acg ccc ccc ata ctc atc 624
Gly Tyr Phe Met Gly His Phe Ala Leu Pro Thr Pro Pro Ile Leu Ile
195 200 205

cat tct ggc gac gct att gta gaa tat ttg caa caa aaa tac gcc ctt 672
His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

aag aaa aat gca cac gca ttc cct aaa gtg gaa ttt cat gcg agc ggc 720
Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

gat atg atc tgg cta gaa aaa caa gct aaa gaa tgg ctc aaa ttg taa 768
Asp Met Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
245 250 255

<210> 20
<211> 255
<212> PRT
<213> H. pylori

<400> 20

Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
1 5 10 15

Lys Ser Leu Leu Lys Ala Gln Leu Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

SEQUENCE LISTING.txt

Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Lys
50 55 60

Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
130 135 140

Phe Val Pro Leu Ile Glu Glu Asn Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
165 170 175

Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
180 185 190

SEQUENCE LISTING.txt

Gly Tyr Phe Met Gly His Phe Ala Leu Pro Thr Pro Pro Ile Leu Ile
195 200 205

His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

Asp Met Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
245 250 255

<210> 21

<211> 768

<212> DNA

<213> *H. pylori*

<221> CDS

<222> (1)..(768)

<400> 21

atg aaa ata ggc gtt ttt gat agc ggt gtg gga ggg ttt agc gtt tta 48
Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
1 5 10 15

aaa agc ctt tta aaa gcg caa tta ttt gat gaa atc atc tat tat ggc 96
Lys Ser Leu Leu Lys Ala Gln Leu Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

gat agc gct aga gtg cct tat ggc act aaa gac ccc acc acg atc aag 144
Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys

SEQUENCE LISTING.txt

35

40

45

caa ttt ggc tta gag gct ttg gat ttt ttc aaa ccg cac cag att aaa 192
Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Lys
50 55 60

tta ttg att gta gca tgc aac aca gcg agc gct cta gct tta gaa gag 240
Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

atg caa aag cat tcc aaa atc cct att gtg ggc gtg att gag cca agc 288
Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

att tta gcg atc aaa caa caa gta aaa gat aaa aac gcc cct att tta 336
Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

gtg cta ggg aca aaa gcg acg att caa tct aac gct tat gac aac gcc 384
Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

ctg aaa caa caa ggc tat ttg aat gtt tcg cat tta gcc act tct ctt 432
Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
130 135 140

ttt gtg cct ttg att gaa gaa agt att tta gag ggc gaa ttg tta gaa 480
Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

act tgc atg cgt tat tat ttc act ccc tta aag att tta cct gaa gtg 528
Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Lys Ile Leu Pro Glu Val
165 170 175

att att tta ggt tgc acg cat ttt ccc ttg atc gct caa aaa att gag 576
Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu

SEQUENCE LISTING.txt

180

185

190

agc tat ttt atg ggg cat ttt gcc ctt cca acg ccc ccc cta ctc atc 624
 Ser Tyr Phe Met Gly His Phe Ala Leu Pro Thr Pro Pro Leu Leu Ile
 195 200 205

cat tct ggc gat gct att gtg gaa tat ttg cag caa aaa tac gcc ctt 672
 His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
 210 215 220

aag aaa aac gca cac gca ttc cct aaa gtg gaa ttt cat gcg agc ggc 720
 Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
 225 230 235 240

gat gtg atc tgg cta gaa aaa caa gct aaa gaa tgg ctc aaa ttg taa 768
 Asp Val Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
 245 250 255

<210> 22

<211> 255

<212> PRT

<213> H. pylori

<400> 22

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 1 5 10 15

Lys Ser Leu Leu Lys Ala Gln Leu Phe Asp Glu Ile Ile Tyr Tyr Gly
 20 25 30

Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
 35 40 45

SEQUENCE LISTING.txt

Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Lys
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Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
130 135 140

Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Lys Ile Leu Pro Glu Val
165 170 175

Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
180 185 190

SEQUENCE LISTING.txt

Ser Tyr Phe Met Gly His Phe Ala Leu Pro Thr Pro Pro Leu Leu Ile
195 200 205

His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

Asp Val Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
245 250 255

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<212> DNA
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<221> CDS
<222> (1)..(768)

<400> 23

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1 5 10 15

aaa agc ctt tta aaa gcg caa cta ttt gat gaa atc atc tat tat ggc 96
Lys Ser Leu Leu Lys Ala Gln Leu Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

gat agc gct aga gtg cct tat ggc act aaa gac ccc acc acg atc aag 144
Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys

SEQUENCE LISTING.txt

35

40

45

caa ttt ggc tta gag gct ttg gat ttt ttc aaa ccg cac cag att gga 192
Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Gly
50 55 60

tta ttg att gtg gca tgc aac aca gcg agc gct ctg gct tta gaa gag 240
Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

atg caa aaa tat tcc aaa atc cct att gtg ggc gtg att gag cca agc 288
Met Gln Lys Tyr Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

att tta gcg atc aaa caa caa gta aaa gat aaa aac gcc ccc att tta 336
Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

gtg cta ggg aca aaa gcg acg atc caa tct aac gct tat gat aac gcc 384
Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

ctg aaa caa caa ggc tat ttg aac att tcg cat tta gcc act tct ctt 432
Leu Lys Gln Gln Gly Tyr Leu Asn Ile Ser His Leu Ala Thr Ser Leu
130 135 140

ttt gtg ccc ttg att gaa gaa agt att tta gag ggc gaa ttg tta gaa 480
Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

act tgc atg cgt tat tat ttc act cca tta gag att tta cct gaa gtg 528
Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
165 170 175

atc att tta ggt tgc acg cat ttt ccc ttg atc gct caa aaa att gag 576
Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu

SEQUENCE LISTING.txt

180

185

190

agc tat ttt atg gag cat ttt gcc ctt tca acg ccc ccc tta ctc atc 624
Ser Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile

195

200

205

cat tct ggc gat gct att gtg gaa tac ttg caa caa aaa tac gcc ctt 672
His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu

210

215

220

aag aaa aac gca cac gca ttc cct aaa gtg gaa ttt cat gcg agc ggc 720
Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly

225

230

235

240

gat gtg atc tgg cta gaa aaa cag gct aaa gaa tgg ctc aaa ttg taa 768
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245

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255

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<211> 255

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<213> H. pylori

<400> 24

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20 25 30

Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

SEQUENCE LISTING.txt

Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Gly
50 55 60

Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

Met Gln Lys Tyr Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

Leu Lys Gln Gln Gly Tyr Leu Asn Ile Ser His Leu Ala Thr Ser Leu
130 135 140

Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
165 170 175

Ile Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
180 185 190

SEQUENCE LISTING.txt

Ser Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile
195 200 205

His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

Asp Val Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
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<211> 768

<212> DNA

<213> *H. pylori*

<221> CDS

<222> (1)..(768)

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1 5 10 15

aaa agc ctt tta aaa gcg caa tta ttt gat gaa atc atc tat tat ggc 96
Lys Ser Leu Leu Lys Ala Gln Leu Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

gat agc gct aga gtg cct tat ggc act aaa gac ccc acc acg atc aag 144
Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

SEQUENCE LISTING.txt

caa ttt ggc tta gag gct ttg gat ttt ttc aaa ccg cac aaa att gaa 192
Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Lys Ile Glu
50 55 60

tta tta att gtg gca tgc aac aca gcg agc gct ctg gct tta gaa gag 240
Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

atg caa aag cat tcc aaa atc ccc att gtg ggc gtg att gag cca agc 288
Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

att tta gcg atc aaa caa caa gtg aaa gat aaa aac acc cct att tta 336
Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Thr Pro Ile Leu
100 105 110

gtg cta ggg aca aaa gcg acg atc caa tct aac gct tac gat aac gcc 384
Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

ctg aaa caa caa ggc tat ttg aag gtt tcg cat ttg gcc act tct ctt 432
Leu Lys Gln Gln Gly Tyr Leu Lys Val Ser His Leu Ala Thr Ser Leu
130 135 140

ttt gtg cct ttg att gaa gaa agt att tta gag ggc gaa ttg tta gaa 480
Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

act tgc atg cgt tat tat ttc act cca tta gaa atc tta cct gaa gtg 528
Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
165 170 175

gtt att tta ggc tgc acg cat ttt ccc ttg atc gct caa aaa att gag 576
Val Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
180 185 190

SEQUENCE LISTING.txt

ggc tat ttt atg gaa cat ttt gcc ctt cca acg ccc ccc cta ctc atc 624
 Gly Tyr Phe Met Glu His Phe Ala Leu Pro Thr Pro Pro Leu Leu Ile
 195 200 205

cat tct ggc gac gct att gtg gga tat ttg cag caa aaa tac gcc ctt 672
 His Ser Gly Asp Ala Ile Val Gly Tyr Leu Gln Gln Lys Tyr Ala Leu
 210 215 220

aag aaa aac gca cac gca ttc cct aaa gtg gaa ttt cat gcg agc ggc 720
 Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
 225 230 235 240

gat gta att tgg cta gaa aaa cag gct aaa gaa tgg ctc aaa ttg taa 768
 Asp Val Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
 245 250 255

<210> 26
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 <212> PRT
 <213> H. pylori

<400> 26

Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
 1 5 10 15

Lys Ser Leu Leu Lys Ala Gln Leu Phe Asp Glu Ile Ile Tyr Tyr Gly
 20 25 30

Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
 35 40 45

SEQUENCE LISTING.txt

Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Lys Ile Glu
50 55 60

Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Thr Pro Ile Leu
100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

Leu Lys Gln Gln Gly Tyr Leu Lys Val Ser His Leu Ala Thr Ser Leu
130 135 140

Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
165 170 175

Val Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
180 185 190

SEQUENCE LISTING.txt

Gly Tyr Phe Met Glu His Phe Ala Leu Pro Thr Pro Pro Leu Leu Ile
195 200 205

His Ser Gly Asp Ala Ile Val Gly Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

Lys Lys Asn Ala His Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

Asp Val Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
245 250 255

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<211> 768

<212> DNA

<213> H. pylori

<221> CDS

<222> (1)..(768)

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1 5 10 15

aaa agc ctt tta aaa gcg caa att ttt gat gaa atc atc tat tat ggc 96
Lys Ser Leu Leu Lys Ala Gln Ile Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

gat agc gct agg gtg cct tat ggc act aaa gac ccc acc acg atc aag 144
Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

SEQUENCE LISTING.txt

caa ttt ggc tta gag gct ttg gat ttt ttc aaa ccg cac aag att gaa 192
Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Lys Ile Glu
50 55 60

tta ttg att gtg gca tgc aac aca gcg agc gct cta gct tta gaa gaa 240
Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

atg caa aag cat tcc aaa atc cct att gtg ggc gtg att gaa cca agc 288
Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

att tta gcg atc aaa caa caa gta aaa gat aaa aac gcc cct att tta 336
Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

gtg cta ggg aca aaa gcg acg att caa tct aac gct tat gac aac gcc 384
Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

ctg aaa caa caa ggc tat ttg aat gtt tcg cat tta gcc act tct ctt 432
Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
130 135 140

ttt gtg cct ttg att gaa gaa aat att tta gag ggc gaa ttg cta gaa 480
Phe Val Pro Leu Ile Glu Glu Asn Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

act tgc atg cgt tat tat ttc act cca tta gag atc ttg cct gaa gtg 528
Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
165 170 175

gtt att tta ggc tgc acg cat ttt ccc ttg atc gct cac caa att gag 576
Val Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala His Gln Ile Glu
180 185 190

SEQUENCE LISTING.txt

ggc tat ttt atg gag cat ttt gcc ctt tca acg ccc ccc cta ctc atc 624
 Gly Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile
 195 200 205

cat tct ggc gat gct att gtg gaa tat ttg cag caa aaa tac gcc ctt 672
 His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
 210 215 220

aag aaa aac gca tgt gca ttc cct aaa gta gaa ttt cat gcg agc ggc 720
 Lys Lys Asn Ala Cys Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
 225 230 235 240

gat gta att tgg cta gaa aaa cag gct aaa gaa tgg ctc aaa ttg taa 768
 Asp Val Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
 245 250 255

<210> 28
 <211> 255
 <212> PRT
 <213> H. pylori

<400> 28

Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
 1 5 10 15

Lys Ser Leu Leu Lys Ala Gln Ile Phe Asp Glu Ile Ile Tyr Tyr Gly
 20 25 30

Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
 35 40 45

Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Lys Ile Glu

SEQUENCE LISTING.txt

50

55

60

Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
130 135 140

Phe Val Pro Leu Ile Glu Glu Asn Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
165 170 175

Val Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala His Gln Ile Glu
180 185 190

Gly Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile

SEQUENCE LISTING.txt

195

200

205

His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

Lys Lys Asn Ala Cys Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

Asp Val Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
245 250 255

<210> 29

<211> 768

<212> DNA

<213> H. pylori

<221> CDS

<222> (1)..(768)

<400> 29

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1 5 10 15

aaa agc ctt tta aaa gtg caa tta ttt gat gaa atc atc tat tat ggc 96
Lys Ser Leu Leu Lys Val Gln Leu Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

gat agt gct agg gtg cct tat ggc act aaa gac ccc acc acg atc aag 144
Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

caa ttt ggc tta gag gct ttg gat ttt ttc aaa ccg cac aag att gaa 192

SEQUENCE LISTING.txt

Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Lys Ile Glu
50 55 60

tta ttg att gtg gca tgc aac aca gcg agc gct cta gct tta gga gag 240
Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Gly Glu
65 70 75 80

atg caa aag tat tcc aaa atc cct att gtg ggc gtg att gag cca agc 288
Met Gln Lys Tyr Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

att tta gcg atc aaa caa caa gta aaa gat aaa aac gcc cct att tta 336
Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

gta cta ggg aca aaa gcg acg att cga tcc aac gct tat gac aac gcc 384
Val Leu Gly Thr Lys Ala Thr Ile Arg Ser Asn Ala Tyr Asp Asn Ala
115 120 125

ctg aaa caa caa ggc tat ttg aat att tcg cat tta gcc act tct ctt 432
Leu Lys Gln Gln Gly Tyr Leu Asn Ile Ser His Leu Ala Thr Ser Leu
130 135 140

ttt gtg cct ttg att gaa gaa aat att tta gag ggc gaa ttg cta gaa 480
Phe Val Pro Leu Ile Glu Glu Asn Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

act tgc atg cgt tat tat ttc act cca tta gag att tta cct gaa gtg 528
Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
165 170 175

gtt att tta ggt tgc acg cat ttt ccc ttg atc gct cac caa att gag 576
Val Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala His Gln Ile Glu
180 185 190

ggc tat ttt atg gag cat ttt gcc ctt tca acg ccc ccc cta ctc atc 624

SEQUENCE LISTING.txt

Gly Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile
195 200 205

cat tct ggc gat gct att gtg gaa tat ttg caa caa aaa tac gcc ctt 672
His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

aag aaa aac gca tgc gca ttc cct aaa gta gaa ttc cat gcg agc ggc 720
Lys Lys Asn Ala Cys Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

gat gta att tgg cta gaa aaa cag gct aaa gaa tgg ctc aaa ttg taa 768
Asp Val Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
245 250 255

<210> 30
<211> 255
<212> PRT
<213> H. pylori

<400> 30

Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
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Lys Ser Leu Leu Lys Val Gln Leu Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Lys Ile Glu
50 55 60

SEQUENCE LISTING.txt

Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Gly Glu
65 70 75 80

Met Gln Lys Tyr Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Arg Ser Asn Ala Tyr Asp Asn Ala
115 120 125

Leu Lys Gln Gln Gly Tyr Leu Asn Ile Ser His Leu Ala Thr Ser Leu
130 135 140

Phe Val Pro Leu Ile Glu Glu Asn Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
165 170 175

Val Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala His Gln Ile Glu
180 185 190

Gly Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile
195 200 205

SEQUENCE LISTING.txt

His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Ala Leu
210 215 220

Lys Lys Asn Ala Cys Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

Asp Val Ile Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
245 250 255

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<211> 768
<212> DNA
<213> *H. pylori*

<221> CDS
<222> (1)..(768)

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Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
1 5 10 15

aaa agc ctt tta aaa gcg caa att ttt gat gaa atc atc tat tat ggc 96
Lys Ser Leu Leu Lys Ala Gln Ile Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

gat agt gct aga gtg cct tat ggc act aaa gac ccc acc acg atc aag 144
Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

caa ttt ggc tta gag gct ttg gat ttt ttc aaa ccg cac cag att gga 192
Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Gly

SEQUENCE LISTING.txt

50

55

60

tta ttg att gtg gca tgc aac aca gcg agc gct cta gct tta gaa gag 240
Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

atg caa aag cat tcc aaa atc cct att gtg ggt gtg att gag cca agc 288
Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

att tta gcg atc aaa caa caa gta aaa gat aaa aac gcc cct att tta 336
Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

gtg tta ggg aca aaa gcg acg att caa tcc aac gct tat gac aac gcc 384
Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

ctg aaa caa caa ggc tat ttg aac gtt tcg cat tta gcc act tct ctt 432
Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
130 135 140

ttt gtg cct ttg att gaa gaa aat att tta gag ggc gaa ttg tta gaa 480
Phe Val Pro Leu Ile Glu Glu Asn Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

act tgc atg cgt tat tat ttc act cca tta gag att tta cct gaa gtg 528
Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
165 170 175

gtt att tta ggt tgc acg cat ttt ccc ttg atc gct cac caa att gag 576
Val Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala His Gln Ile Glu
180 185 190

ggc tat ttt atg gag cat ttt gcc ctt tca acg ccc ccc tta ctc atc 624
Gly Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile

SEQUENCE LISTING.txt

195 200 205

cat tct ggc gat gct att gtg gaa tat ttg caa caa aaa tac acc ctt 672
His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Thr Leu
210 215 220

aag aaa aat gca tgc gcg ttc cct aaa gtg gaa ttt cat gcg agc ggc 720
Lys Lys Asn Ala Cys Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

gat gtg gtt tgg cta gaa aaa cag gct aaa gaa tgg ctc aaa ttg taa 768
Asp Val Val Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
245 250 255

<210> 32
<211> 255
<212> PRT
<213> H. pylori

<400> 32

Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
1 5 10 15

Lys Ser Leu Leu Lys Ala Gln Ile Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Gly
50 55 60

SEQUENCE LISTING.txt

Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

Met Gln Lys His Ser Lys Ile Pro Ile Val Gly Val Ile Glu Pro Ser
85 90 95

Ile Leu Ala Ile Lys Gln Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
130 135 140

Phe Val Pro Leu Ile Glu Glu Asn Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
165 170 175

Val Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala His Gln Ile Glu
180 185 190

Gly Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile
195 200 205

SEQUENCE LISTING.txt

His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Lys Tyr Thr Leu
210 215 220

Lys Lys Asn Ala Cys Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

Asp Val Val Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
245 250 255

<210> 33
<211> 765
<212> DNA
<213> H. pylori

<221> CDS
<222> (1)..(765)

<400> 33
atg aaa ata ggc gtt ttt gat agc ggt gtg gga ggg ttt agc gtt tta 48
Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
1 5 10 15

aaa agc ctt tta aaa gcg caa cta ttt gat gaa atc atc tat tat ggc 96
Lys Ser Leu Leu Lys Ala Gln Leu Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

gat agc gct aga gtg cct tat ggc act aaa gac ccc acc acg atc aag 144
Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

caa ttt ggc tta gag gct ttg gat ttt ttc aaa ccg cac cag att aaa 192
Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Lys
50 55 60

SEQUENCE LISTING.txt

tta ttg att gtg gca tgc aac acc gca agc gct ctg gct tta gaa gag 240
Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

atg caa aag cat tcc aaa atc cct gtt gtg ggc gtg att gag cca agc 288
Met Gln Lys His Ser Lys Ile Pro Val Val Gly Val Ile Glu Pro Ser
85 90 95

att tta gcg atc aaa cgg caa gtg aaa gat aaa aac gcc cct att ttg 336
Ile Leu Ala Ile Lys Arg Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
100 105 110

gtg cta ggg aca aaa gcg acg att caa tcc aac gcc tat gat aac gcc 384
Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
115 120 125

ctg aaa caa caa ggc tat ttg aat gtt tcg cat tta gcc act tct ctt 432
Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
130 135 140

ttt gtg cct ttg att gaa gaa agt att tta gag ggc gaa ttg cta gaa 480
Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

act tgc atg cgt tat tat ttc act cca tta gag att tta cct gaa gtg 528
Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
165 170 175

gtt att tta ggt tgc acg cat ttt ccc ttg atc gct caa aaa att gag 576
Val Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
180 185 190

ggc tat ttt atg gag cat ttt gcc ctt tca acg ccc ccc cta ctc atc 624
Gly Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile
195 200 205

SEQUENCE LISTING.txt

cat tct ggc gat gct att gtg gaa tat ttg caa caa aat tac gcc ctt 672
His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Asn Tyr Ala Leu
210 215 220

aag aaa aac gca tgc gcg ttc cct aaa gtg gaa ttt cat gcg agc ggc 720
Lys Lys Asn Ala Cys Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

gat gtg gtt tgg cta gaa aaa caa gct aaa gaa tgg ctt aaa ttg 765
Asp Val Val Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
245 250 255

<210> 34
<211> 255
<212> PRT
<213> H. pylori

<400> 34

Met Lys Ile Gly Val Phe Asp Ser Gly Val Gly Gly Phe Ser Val Leu
1 5 10 15

Lys Ser Leu Leu Lys Ala Gln Leu Phe Asp Glu Ile Ile Tyr Tyr Gly
20 25 30

Asp Ser Ala Arg Val Pro Tyr Gly Thr Lys Asp Pro Thr Thr Ile Lys
35 40 45

Gln Phe Gly Leu Glu Ala Leu Asp Phe Phe Lys Pro His Gln Ile Lys
50 55 60

SEQUENCE LISTING.txt

Leu Leu Ile Val Ala Cys Asn Thr Ala Ser Ala Leu Ala Leu Glu Glu
65 70 75 80

Met Gln Lys His Ser Lys Ile Pro Val Val Gly Val Ile Glu Pro Ser
 85 90 95

Ile Leu Ala Ile Lys Arg Gln Val Lys Asp Lys Asn Ala Pro Ile Leu
 100 105 110

Val Leu Gly Thr Lys Ala Thr Ile Gln Ser Asn Ala Tyr Asp Asn Ala
 115 120 125

Leu Lys Gln Gln Gly Tyr Leu Asn Val Ser His Leu Ala Thr Ser Leu
 130 135 140

Phe Val Pro Leu Ile Glu Glu Ser Ile Leu Glu Gly Glu Leu Leu Glu
145 150 155 160

Thr Cys Met Arg Tyr Tyr Phe Thr Pro Leu Glu Ile Leu Pro Glu Val
 165 170 175

Val Ile Leu Gly Cys Thr His Phe Pro Leu Ile Ala Gln Lys Ile Glu
 180 185 190

Gly Tyr Phe Met Glu His Phe Ala Leu Ser Thr Pro Pro Leu Leu Ile
 195 200 205

SEQUENCE LISTING.txt

His Ser Gly Asp Ala Ile Val Glu Tyr Leu Gln Gln Asn Tyr Ala Leu
210 215 220

Lys Lys Asn Ala Cys Ala Phe Pro Lys Val Glu Phe His Ala Ser Gly
225 230 235 240

Asp Val Val Trp Leu Glu Lys Gln Ala Lys Glu Trp Leu Lys Leu
245 250 255

<210> 35
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 35
aaatagtcac atgaaaatag gcgtttttg 29

<210> 36
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 36
agaattctat tacaatttga gccattct 28

<210> 37
<211> 26
<212> DNA

SEQUENCE LISTING.txt

<213> *Artificial Sequence*

<220>

<223> *primer*

<400> 37

gcgaattcga tcagaatttt tttct

26

<210> 38

<211> 26

<212> *DNA*

<213> *Artificial Sequence*

<220>

<223> *primer*

<400> 38

ataagtactt gtgaatctta tactag

26

<210> 39

<211> 858

<212> *DNA*

<213> *E. coli*

<400> 39

atggctacca aactgcagga cggaataca cttgtctgg cagctacacc ttctgaacca
60

cgtcccaccg tgctggtggt tgactccggc gtcggtgggt tgtcgggtcta tgacgagatc
120

cgcatctct taccggatct ccattacatt tatgctttcg ataacgtcgc tttcccgtat 180

ggcgaaaaaa gcgaagcggt tattgttgag cgagtgggtg caattgtcac cgcggtgcaa
240

SEQUENCE LISTING.txt

gaacgttatc cccttgcgct ggctgtggtc gcttgcaaca ctgccagtac cgtttcactt 300

cctgcattac gcgaaaagtt cgacttcccg gttgttggtg tcgtgccggc gattaaacct
360

gctgcacgtc tgacggcaaa tggcattgtc ggattactgg caaccgcgg aacagttaa
420

cgttcttata ctcagagct gatcgcgctg ttcgctaata aatgccagat agaaatgctg
480

ggctcggcag agatgggtga gttggctgaa gcgaagctac atggcgaaga tgtttctctg
540

gatgcactaa aacgtatcct acgcccgtgg ttaagaatga aagagccgcc agataccgtt
600

gtattgggtt gcacccattt cccttacta caagaagaac tgttacaagt gctgccagag
660

ggaaccggc tggaggattc tggcgagcg attgctcgcc gaacggcctg gttgttagaa
720

catgaagccc cggatgcaaa atctgccgat gcgaatattg ccttttgtat ggcaatgacg
780

ccaggagctg aacaattatt gcccgtttta cagcgttacg gcttcgaaac gctcgaaaaa
840

ctggcagttt taggctga 858

<210> 40

<211> 285

<212> PRT

<213> *E. coli*

SEQUENCE LISTING.txt

<400> 40

Met Ala Thr Lys Leu Gln Asp Gly Asn Thr Pro Cys Leu Ala Ala Thr
1 5 10 15

Pro Ser Glu Pro Arg Pro Thr Val Leu Val Phe Asp Ser Gly Val Gly
20 25 30

Gly Leu Ser Val Tyr Asp Glu Ile Arg His Leu Leu Pro Asp Leu His
35 40 45

Tyr Ile Tyr Ala Phe Asp Asn Val Ala Phe Pro Tyr Gly Glu Lys Ser
50 55 60

Glu Ala Phe Ile Val Glu Arg Val Val Ala Ile Val Thr Ala Val Gln
65 70 75 80

Glu Arg Tyr Pro Leu Ala Leu Ala Val Val Ala Cys Asn Thr Ala Ser
85 90 95

Thr Val Ser Leu Pro Ala Leu Arg Glu Lys Phe Asp Phe Pro Val Val
100 105 110

Gly Val Val Pro Ala Ile Lys Pro Ala Ala Arg Leu Thr Ala Asn Gly
115 120 125

Ile Val Gly Leu Leu Ala Thr Arg Gly Thr Val Lys Arg Ser Tyr Thr
130 135 140

SEQUENCE LISTING.txt

His Glu Leu Ile Ala Arg Phe Ala Asn Glu Cys Gln Ile Glu Met Leu
145 150 155 160

Gly Ser Ala Glu Met Val Glu Leu Ala Glu Ala Lys Leu His Gly Glu
165 170 175

Asp Val Ser Leu Asp Ala Leu Lys Arg Ile Leu Arg Pro Trp Leu Arg
180 185 190

Met Lys Glu Pro Pro Asp Thr Val Val Leu Gly Cys Thr His Phe Pro
195 200 205

Leu Leu Gln Glu Glu Leu Leu Gln Val Leu Pro Glu Gly Thr Arg Leu
210 215 220

Val Asp Ser Gly Ala Ala Ile Ala Arg Arg Thr Ala Trp Leu Leu Glu
225 230 235 240

His Glu Ala Pro Asp Ala Lys Ser Ala Asp Ala Asn Ile Ala Phe Cys
245 250 255

Met Ala Met Thr Pro Gly Ala Glu Gln Leu Leu Pro Val Leu Gln Arg
260 265 270

Tyr Gly Phe Glu Thr Leu Glu Lys Leu Ala Val Leu Gly

SEQUENCE LISTING.txt

275

280

285

<210> 41

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 41

aaatagtcat atgaaaatag gcgtttttg

29

<210> 42

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 42

agaattctat tacaatttga gccattct

28

<210> 43

<211> 822

<212> DNA

<213> *E. faecalis*

<400> 43

atgagcaatc aagaagccat tggattaatt gattctggcg ttggtggatt aactgtttta

60

aaggaagcgc taaagcaatt accaaatgaa cgattaattt atttaggaga tacagcccgt

120

SEQUENCE LISTING.txt

tgcccatatg gtccacgacc agccgaacaa gtcgttcagt ttacttgga aatggccgat
180

ttttattga aaaaacgaat aaaaatgcta gtaatcgcat gtaataccgc gacggctgtc
240

gcattagaag aaattaaagc tgccttgcca attccagttg ttggtgttat ttacctggc
300

gcacgagcag ccgttaaagt cacaaaaaat aacaaaattg gtgtcatagg taccttaggg
360

acaatcaaaa gtgcttccta tgaaatcgcc attaaaagta aggcaccagc aattgaggtg
420

actagtttag cttgccctaa attgtcccc attgttgaaa gtaatcaata tcgttcttcc 480

gtagcaaaaa aaattgtggc agaaacactt caagcactac aattaaaagg acttgatacg
540

ttgatttttag gttgtacca ttaccggtg ttacgtccgg tgattcaaaa tgtgatgggg 600

agtcatttga cattaattga ctcaggagcc gaaacagttg gcgaagtcag catgcttctc
660

gattattttg acattgcca cagcctgaa gcgcctacac agcccatga attttataca
720

actggttctg caaaaatggt tgaagagatt gcaagcagtt ggcttggtat agagaactta
780

aaagcacaac agattcactt aggaggaaac gaaaatgatt ag 822

<210> 44

<211> 273

<212> PRT

SEQUENCE LISTING.txt

<213> *E. faecalis*

<400> 44

Met Ser Asn Gln Glu Ala Ile Gly Leu Ile Asp Ser Gly Val Gly Gly
1 5 10 15

Leu Thr Val Leu Lys Glu Ala Leu Lys Gln Leu Pro Asn Glu Arg Leu
20 25 30

Ile Tyr Leu Gly Asp Thr Ala Arg Cys Pro Tyr Gly Pro Arg Pro Ala
35 40 45

Glu Gln Val Val Gln Phe Thr Trp Glu Met Ala Asp Phe Leu Leu Lys
50 55 60

Lys Arg Ile Lys Met Leu Val Ile Ala Cys Asn Thr Ala Thr Ala Val
65 70 75 80

Ala Leu Glu Glu Ile Lys Ala Ala Leu Pro Ile Pro Val Val Gly Val
85 90 95

Ile Leu Pro Gly Ala Arg Ala Ala Val Lys Val Thr Lys Asn Asn Lys
100 105 110

Ile Gly Val Ile Gly Thr Leu Gly Thr Ile Lys Ser Ala Ser Tyr Glu
115 120 125

SEQUENCE LISTING.txt

Ile Ala Ile Lys Ser Lys Ala Pro Ala Ile Glu Val Thr Ser Leu Ala
130 135 140

Cys Pro Lys Phe Val Pro Ile Val Glu Ser Asn Gln Tyr Arg Ser Ser
145 150 155 160

Val Ala Lys Lys Ile Val Ala Glu Thr Leu Gln Ala Leu Gln Leu Lys
165 170 175

Gly Leu Asp Thr Leu Ile Leu Gly Cys Thr His Tyr Pro Leu Leu Arg
180 185 190

Pro Val Ile Gln Asn Val Met Gly Ser His Val Thr Leu Ile Asp Ser
195 200 205

Gly Ala Glu Thr Val Gly Glu Val Ser Met Leu Leu Asp Tyr Phe Asp
210 215 220

Ile Ala His Thr Pro Glu Ala Pro Thr Gln Pro His Glu Phe Tyr Thr
225 230 235 240

Thr Gly Ser Ala Lys Met Phe Glu Glu Ile Ala Ser Ser Trp Leu Gly
245 250 255

Ile Glu Asn Leu Lys Ala Gln Gln Ile His Leu Gly Gly Asn Glu Asn
260 265 270

SEQUENCE LISTING.txt

Asp

<210> 45
<211> 801
<212> DNA
<213> *S. aureus*

<400> 45
atgaataaac caataggtgt aatagactct ggtgtcggag gtttgacagt agctaaagaa
60

attatgcgtc agttgccaaa tgagacgatt tattacttag gtgatattgg gcgatgtcca
120

tatgggccaa gaccaggaga acaagtaaaa caatatacag ttgaaatcgc tcgtaaatta
180

atggaatttg atataaaaat gctcgtgatt gcttgtaata ctgcaactgc ttagacttta
240

gaatatttac aaaagacctt atcaatctca gtgattggcg taattgaacc aggtgctaga
300

acagcaataa tgacgactag aaatcaaaat gtattagtag taggaacgga aggcacaatt
360

aaatctgaag catatcgaac acatattaa cgtataaatc cacatgtaga ggtacatggc
420

gttgctgtc caggttttgt gccacttgta gaacaaatga gatatagtga tccaacaatt
480

acaagcattg ttattcatca aacactgaaa cgttggcgta atagtgagtc tgatactgtc
540

attttaggat gtaccacta tccattgctc tataaaccta tctatgatta ttttggtggt 600

SEQUENCE LISTING.txt

aaaaagacag tgatttcgtc tggattagaa acggctcgtg aagttagtgc attgctaaca
660

tttagtaatg aacatgcaag ttatactgaa catccagatc atcgattttt tgcaacaggt
720

gataccacac atattactaa cattatcaaa gaatggctaa atttatctgt caatgtggaa
780

cgtatatcag tgaatgacta g 801

<210> 46
<211> 266
<212> PRT
<213> *S. aureus*

<400> 46

Met Asn Lys Pro Ile Gly Val Ile Asp Ser Gly Val Gly Gly Leu Thr
1 5 10 15

Val Ala Lys Glu Ile Met Arg Gln Leu Pro Asn Glu Thr Ile Tyr Tyr
20 25 30

Leu Gly Asp Ile Gly Arg Cys Pro Tyr Gly Pro Arg Pro Gly Glu Gln
35 40 45

Val Lys Gln Tyr Thr Val Glu Ile Ala Arg Lys Leu Met Glu Phe Asp
50 55 60

Ile Lys Met Leu Val Ile Ala Cys Asn Thr Ala Thr Ala Val Ala Leu

SEQUENCE LISTING.txt

65 70 75 80

Glu Tyr Leu Gln Lys Thr Leu Ser Ile Ser Val Ile Gly Val Ile Glu
 85 90 95

Pro Gly Ala Arg Thr Ala Ile Met Thr Thr Arg Asn Gln Asn Val Leu
 100 105 110

Val Leu Gly Thr Glu Gly Thr Ile Lys Ser Glu Ala Tyr Arg Thr His
 115 120 125

Ile Lys Arg Ile Asn Pro His Val Glu Val His Gly Val Ala Cys Pro
 130 135 140

Gly Phe Val Pro Leu Val Glu Gln Met Arg Tyr Ser Asp Pro Thr Ile
145 150 155 160

Thr Ser Ile Val Ile His Gln Thr Leu Lys Arg Trp Arg Asn Ser Glu
 165 170 175

Ser Asp Thr Val Ile Leu Gly Cys Thr His Tyr Pro Leu Leu Tyr Lys
 180 185 190

Pro Ile Tyr Asp Tyr Phe Gly Gly Lys Lys Thr Val Ile Ser Ser Gly
 195 200 205

Leu Glu Thr Ala Arg Glu Val Ser Ala Leu Leu Thr Phe Ser Asn Glu

SEQUENCE LISTING.txt

210

215

220

His Ala Ser Tyr Thr Glu His Pro Asp His Arg Phe Phe Ala Thr Gly
225 230 235 240

Asp Thr Thr His Ile Thr Asn Ile Ile Lys Glu Trp Leu Asn Leu Ser
245 250 255

Val Asn Val Glu Arg Ile Ser Val Asn Asp
260 265

<210> 47

<211> 822

<212> DNA

<213> *E. faecium*

<400> 47

atgatacgat tgacagataa tcgccctatc ggatttattg attcaggtgt cggcggcttg
60

actgtagtaa aagaagccct gaaacaatta ccgaatgaaa atattttatt tgtaggagac
120

acagcacgct gcccatatgg ccctagaccc gcggaacagg taatccagta tacttgggaa
180

atgacggatt atctggtgga gcaaggaatc aagatgctgg tgatcgctg caataccgca
240

actgcggtgg ctttagaaga aatcaaagct gctctttcta ttccagtcac cggtgtgatc
300

cttcccggta ctagagcggc agtaaaaaaa acacaaaata aacaagttgg cattatcggt

SEQUENCE LISTING.txt

360

acgattggta cggtaaaaag tcaagcttat gaaaaagcac tgaaagagaa agtaccagaa
420

ttgactgtga caagtcttgc ttgtccaaaa tttgtttcag ttgtcgaaag taatgaatac 480

cattcatcgg tggcgaaaaa aattgtggca gaaacattag ctcctttaac cactaaaaaa
540

atcgatacat tgattttggg atgcacccat tatccattat tacgccccat cattcaaaat 600

gtaatgggag aaaatgttca actgatcgat tctggagcag aaacagtagg tgaagtatct
660

atgctgttag attatttcaa tctgagcaat tcaccgcaaa atggtcggac attatgccag
720

ttttatacaa ctggctctgc caaacttttc gaggaatatag ctgaagactg gcttggaatc
780

ggacacttaa atgtagaaca tatcgaattg ggaggaaaat aa 822

<210> 48

<211> 273

<212> PRT

<213> *E. faecium*

<400> 48

Met Ile Arg Leu Thr Asp Asn Arg Pro Ile Gly Phe Ile Asp Ser Gly
1 5 10 15

Val Gly Gly Leu Thr Val Val Lys Glu Ala Leu Lys Gln Leu Pro Asn
20 25 30

SEQUENCE LISTING.txt

Glu Asn Ile Leu Phe Val Gly Asp Thr Ala Arg Cys Pro Tyr Gly Pro
35 40 45

Arg Pro Ala Glu Gln Val Ile Gln Tyr Thr Trp Glu Met Thr Asp Tyr
50 55 60

Leu Val Glu Gln Gly Ile Lys Met Leu Val Ile Ala Cys Asn Thr Ala
65 70 75 80

Thr Ala Val Ala Leu Glu Glu Ile Lys Ala Ala Leu Ser Ile Pro Val
85 90 95

Ile Gly Val Ile Leu Pro Gly Thr Arg Ala Ala Val Lys Lys Thr Gln
100 105 110

Asn Lys Gln Val Gly Ile Ile Gly Thr Ile Gly Thr Val Lys Ser Gln
115 120 125

Ala Tyr Glu Lys Ala Leu Lys Glu Lys Val Pro Glu Leu Thr Val Thr
130 135 140

Ser Leu Ala Cys Pro Lys Phe Val Ser Val Val Glu Ser Asn Glu Tyr
145 150 155 160

His Ser Ser Val Ala Lys Lys Ile Val Ala Glu Thr Leu Ala Pro Leu
165 170 175

SEQUENCE LISTING.txt

Thr Thr Lys Lys Ile Asp Thr Leu Ile Leu Gly Cys Thr His Tyr Pro
180 185 190

Leu Leu Arg Pro Ile Ile Gln Asn Val Met Gly Glu Asn Val Gln Leu
195 200 205

Ile Asp Ser Gly Ala Glu Thr Val Gly Glu Val Ser Met Leu Leu Asp
210 215 220

Tyr Phe Asn Leu Ser Asn Ser Pro Gln Asn Gly Arg Thr Leu Cys Gln
225 230 235 240

Phe Tyr Thr Thr Gly Ser Ala Lys Leu Phe Glu Glu Ile Ala Glu Asp
245 250 255

Trp Leu Gly Ile Gly His Leu Asn Val Glu His Ile Glu Leu Gly Gly
260 265 270

Lys

<210> 49

<211> 335

<212> DNA

<213> *E. saccharolyticus*

<400> 49

gcatgtaata ccgcaacggc ggtagcgta gaagaaatta aagcgcaatt agatattcca
60

SEQUENCE LISTING.txt

gtcgtcgggtg tgatcttacc tggactctgt gctgcagtta aagctacgaa aaatcgtcaa
120

atcggtatta taggaacagc gggtagaatt aaaagtagtt cgtatgagca agcaattaa
180

atgaaagtgc ctgaagcatc ggtgactagt ttagcttgtc ctaaatttgt accgattgtt
240

gaaagtaatc aatttcaatc atcggtagct aaaaaaattg ttgctgagac gttattacca
300

ttgcaacata aaaaattaga tacgttgatt ttagg 335

<210> 50

<211> 111

<212> PRT

<213> E. saccharolyticus

<400> 50

Ala Cys Asn Thr Ala Thr Ala Val Ala Leu Glu Glu Ile Lys Ala Gln
1 5 10 15

Leu Asp Ile Pro Val Val Gly Val Ile Leu Pro Gly Thr Arg Ala Ala
20 25 30

Val Lys Ala Thr Lys Asn Arg Gln Ile Gly Ile Ile Gly Thr Ala Gly
35 40 45

Thr Ile Lys Ser Ser Ser Tyr Glu Gln Ala Ile Lys Met Lys Val Pro
50 55 60

SEQUENCE LISTING.txt

Glu Ala Ser Val Thr Ser Leu Ala Cys Pro Lys Phe Val Pro Ile Val
65 70 75 80

Glu Ser Asn Gln Phe Gln Ser Ser Val Ala Lys Lys Ile Val Ala Glu
 85 90 95

Thr Leu Leu Pro Leu Gln His Lys Lys Leu Asp Thr Leu Ile Leu
 100 105 110

<210> 51

<211> 344

<212> DNA

<213> *E. mundtii*

<400> 51

gtaatcgc at gtaataccgc aactgcggtc gcattagaag aaatcaaagc aacactctcg
60

attccagtga tcggtgtgat ttgcccagga acgagagcgg cagtcaagca gacgaaaaat
120

catcgagtag gggtgattgg aacaattggt accgtcaaaa gtgctgctta cgagacggca
180

ttattggata aagcaccgga actgaaagtt accagcttgg cgtgtccaaa gtttgtttca
240

gtcgtagaaa gtaaagaata ccgatcatca gtcgctaaaa aaatcgtggc tcaaactttg
300

cttcattag aattaaagg gatcgatag ttgattttag gttg 344

SEQUENCE LISTING.txt

<210> 52
<211> 113
<212> PRT
<213> *E. mundtii*

<400> 52

Val Ile Ala Cys Asn Thr Ala Thr Ala Val Ala Leu Glu Glu Ile Lys
1 5 10 15

Ala Thr Leu Ser Ile Pro Val Ile Gly Val Ile Leu Pro Gly Thr Arg
20 25 30

Ala Ala Val Lys Gln Thr Lys Asn His Arg Val Gly Val Ile Gly Thr
35 40 45

Ile Gly Thr Val Lys Ser Ala Ala Tyr Glu Thr Ala Leu Leu Asp Lys
50 55 60

Ala Pro Glu Leu Lys Val Thr Ser Leu Ala Cys Pro Lys Phe Val Ser
65 70 75 80

Val Val Glu Ser Lys Glu Tyr Arg Ser Ser Val Ala Lys Lys Ile Val
85 90 95

Ala Gln Thr Leu Leu Pro Leu Glu Leu Lys Gly Ile Asp Thr Leu Ile
100 105 110

Leu

SEQUENCE LISTING.txt

<210> 53
<211> 340
<212> DNA
<213> *E. casseliflavus*

<400> 53
atcgcatgta ataccgcgac agcggtcgcc cttgaagaaa tcaaagaaca actaacgatc
60

ccagtgatcg gcgtgacacct gcctggcagt cgagcagcag tcaaagcaag caaaaaccaa
120

cgaatcgggtg tcatcggggac aaacggaacg atcaaaagtg actcttacaa gcgcgcgctt
180

catggcaaag cgcccatgc gtccgtcgtc agtttggtt gcccgaaagt tgtgccgatc
240

gtagaaagca aacaatacca tagctcggtc gccaagaaaa tcgtggcaga aacgttgctg
300

ccattgaaaa acaaacggct agatacgttg attttagggtg 340

<210> 54
<211> 112
<212> PRT
<213> *E. casseliflavus*

<400> 54

Ile Ala Cys Asn Thr Ala Thr Ala Val Ala Leu Glu Glu Ile Lys Glu
1 5 10 15

Gln Leu Thr Ile Pro Val Ile Gly Val Ile Leu Pro Gly Ser Arg Ala

SEQUENCE LISTING.txt

20

25

30

Ala Val Lys Ala Ser Lys Asn Gln Arg Ile Gly Val Ile Gly Thr Asn
 35 40 45

Gly Thr Ile Lys Ser Asp Ser Tyr Lys Arg Ala Leu His Gly Lys Ala
 50 55 60

Pro His Ala Ser Val Val Ser Leu Ala Cys Pro Lys Phe Val Pro Ile
 65 70 75 80

Val Glu Ser Lys Gln Tyr His Ser Ser Val Ala Lys Lys Ile Val Ala
 85 90 95

Glu Thr Leu Arg Pro Leu Lys Asn Lys Arg Leu Asp Thr Leu Ile Leu
 100 105 110

<210> 55

<211> 337

<212> DNA

<213> *E. flavescens*

<400> 55

atcgcatgta ataccgcgac agcggtcgcc cttgaagaaa tcaaagaaca actaacgac
 60

ccagtgatcg gcgtgatcct gcctggcagt cgagcagcag tcaaagcaag caaaaaccaa
 120

cgaatcggtg tcatcgggac aaacggaacg atcaaaagtg actcttataa gcgcgcgctt
 180

SEQUENCE LISTING.txt

catggcaaag cgcccatgc gtccgtcgtc agtttggtt gcccgagtt tgtgccgatc
240

gtagaaagca aacaatacca tagctcggtc gccaaagaaa tcgtggcaga aacgttgctg
300

ccattgaaaa acaaacggct agatacgttg attttag 337

<210> 56

<211> 112

<212> PRT

<213> *E. flavescens*

<400> 56

Ile Ala Cys Asn Thr Ala Thr Ala Val Ala Leu Glu Glu Ile Lys Glu
1 5 10 15

Gln Leu Thr Ile Pro Val Ile Gly Val Ile Leu Pro Gly Ser Arg Ala
20 25 30

Ala Val Lys Ala Ser Lys Asn Gln Arg Ile Gly Val Ile Gly Thr Asn
35 40 45

Gly Thr Ile Lys Ser Asp Ser Tyr Lys Arg Ala Leu His Gly Lys Ala
50 55 60

Pro His Ala Ser Val Val Ser Leu Ala Cys Pro Lys Phe Val Pro Ile
65 70 75 80

SEQUENCE LISTING.txt

Val Glu Ser Lys Gln Tyr His Ser Ser Val Ala Lys Lys Ile Val Ala
85 90 95

Glu Thr Leu Arg Pro Leu Lys Asn Lys Arg Leu Asp Thr Leu Ile Leu
100 105 110

<210> 57

<211> 341

<212> DNA

<213> *E. cecorum*

<400> 57

atcgcatgta ataccgcgac tgcagcagct ttaacccaaa ttaaggaaca attagacatt
60

ccagttgtcg gtgtgatttt acctggaact agagctgctg tcaaaaatac aaaatcgcaa
120

cgaattggga ttatcggcac acaaggaacc atccaaagtg gcagttatga acaagccatt
180

ctttctaaag taccgactgc tcaacctgtg agttagcgt gtcctagatt tggtccgata 240

gtagaaagta atcaagcaaa ttcaagtgtg gcaaaaaaaaaa ttgtcgctca aacactacaa
300

ccgatgacga aaaaaaacat cgatacgttg attttaggtt g 341

<210> 58

<211> 112

<212> PRT

<213> *E. cecorum*

<400> 58

SEQUENCE LISTING.txt

Ile Ala Cys Asn Thr Ala Thr Ala Ala Ala Leu Thr Gln Ile Lys Glu
1 5 10 15

Gln Leu Asp Ile Pro Val Val Gly Val Ile Leu Pro Gly Thr Arg Ala
20 25 30

Ala Val Lys Asn Thr Lys Ser Gln Arg Ile Gly Ile Ile Gly Thr Gln
35 40 45

Gly Thr Ile Gln Ser Gly Ser Tyr Glu Gln Ala Ile Leu Ser Lys Val
50 55 60

Pro Thr Ala Gln Pro Val Ser Leu Ala Cys Pro Arg Phe Val Pro Ile
65 70 75 80

Val Glu Ser Asn Gln Ala Asn Ser Ser Val Ala Lys Lys Ile Val Ala
85 90 95

Gln Thr Leu Gln Pro Met Thr Lys Lys Asn Ile Asp Thr Leu Ile Leu
100 105 110

<210> 59

<211> 339

<212> DNA

<213> *E. raffinosus*

<400> 59

atcgcatgta ataccgcgac ggcagtagct ttggaagaaa taaaagaac cgtagatatt
60

SEQUENCE LISTING.txt

cccgtaatcg gtgttatata gccaggatct cgcgacgcgt taaaggcaag cgaaaatggg
120

cgcgtagggaa ttatcggaac cattggaaca gtaaaaagtg gttcttataa acacgaacta
180

caggaaaaag ctctgatac ttatgtttct agttagcat gcccaaaatt tgtaccgatt
240

gttgaaagta atcaatttaa tagctcggtg gcgaaaaaaaa ttgtttctca aacattaact
300

cctttgaaaa aggaaaagtt ggatacgttg attttaggt 339

<210> 60

<211> 112

<212> PRT

<213> *E. raffinosus*

<400> 60

Ile Ala Cys Asn Thr Ala Thr Ala Val Ala Leu Glu Glu Ile Lys Arg
1 5 10 15

Thr Val Asp Ile Pro Val Ile Gly Val Ile Gln Pro Gly Ser Arg Ala
20 25 30

Ala Leu Lys Ala Ser Glu Asn Gly Arg Val Gly Ile Ile Gly Thr Ile
35 40 45

Gly Thr Val Lys Ser Gly Ser Tyr Lys His Glu Leu Gln Glu Lys Ala
50 55 60

SEQUENCE LISTING.txt

Pro Asp Thr Tyr Val Ser Ser Leu Ala Cys Pro Lys Phe Val Pro Ile
65 70 75 80

Val Glu Ser Asn Gln Phe Asn Ser Ser Val Ala Lys Lys Ile Val Ser
 85 90 95

Gln Thr Leu Thr Pro Leu Lys Lys Glu Lys Leu Asp Thr Leu Ile Leu
 100 105 110

<210> 61

<211> 341

<212> DNA

<213> *E. malodoratus*

<400> 61

atcgcatgta ataccgcaac cgcagtggct ttagaagaga ttaagaagaa cgttgatatt
60

cctgttattg gtgttatcca accaggatca cgtgctgcat taaaagcaag taaaaatagt
120

cgtgtaggta tcatcggaac actaggaact gttaaaagtg gatcttataa acatgagctg
180

caagaaaaag caccagaaac gtatgttgct agtctggcct gcccaaaatt tgtgccaatc
240

gttgaaagta atcagtttaa tagttctgta gccaaaaaga ttgtttcaca atctctggca
300

cccttaaaaa aggaaaaatt agatacgttg attttaggtt g 341

<210> 62

SEQUENCE LISTING.txt

<211> 112

<212> PRT

<213> *E. malodoratus*

<400> 62

Ile Ala Cys Asn Thr Ala Thr Ala Val Ala Leu Glu Glu Ile Lys Lys
1 5 10 15

Asn Val Asp Ile Pro Val Ile Gly Val Ile Gln Pro Gly Ser Arg Ala
 20 25 30

Ala Leu Lys Ala Ser Lys Asn Ser Arg Val Gly Ile Ile Gly Thr Leu
 35 40 45

Gly Thr Val Lys Ser Gly Ser Tyr Lys His Glu Leu Gln Glu Lys Ala
 50 55 60

Pro Glu Thr Tyr Val Ala Ser Leu Ala Cys Pro Lys Phe Val Pro Ile
65 70 75 80

Val Glu Ser Asn Gln Phe Asn Ser Ser Val Ala Lys Lys Ile Val Ser
 85 90 95

Gln Ser Leu Ala Pro Leu Lys Lys Glu Lys Leu Asp Thr Leu Ile Leu
 100 105 110

<210> 63

<211> 338

<212> DNA

SEQUENCE LISTING.txt

<213> *E. solitarus*

<400> 63

gcatgtaata ccgcaacagc tgtggcttta gatgagatta aagagcaact gcaaatccct
60

gttggtggag ttattatgcc gggaaccaga gcagctgtta aagcgactaa aaatcatcgt
120

attggtgtga ttggcacaaa aggaacagtt aaaagtcct cttacaaacg agcaatcaaa
180

gaaaaaaaaatg aaaatacaaaa agtaacaagt ttggcttgtc cgaagtttgt tcccattgtg
240

gaaagtaatc aaattcattc ttcagtggca aaaaaaattg tatttgaaac actattaccc
300

ttaaaaaata aacatttaga tacgttgatt ttaggttg 338

<210> 64

<211> 111

<212> PRT

<213> *E. solitarus*

<400> 64

Ala Cys Asn Thr Ala Thr Ala Val Ala Leu Asp Glu Ile Lys Glu Gln
1 5 10 15

Leu Gln Ile Pro Val Val Gly Val Ile Met Pro Gly Thr Arg Ala Ala
20 25 30

Val Lys Ala Thr Lys Asn His Arg Ile Gly Val Ile Gly Thr Lys Gly

SEQUENCE LISTING.txt

35

40

45

Thr Val Lys Ser Ala Ser Tyr Lys Arg Ala Ile Lys Glu Lys Asn Glu
50 55 60

Asn Thr Lys Val Thr Ser Leu Ala Cys Pro Lys Phe Val Pro Ile Val
65 70 75 80

Glu Ser Asn Gln Ile His Ser Ser Val Ala Lys Lys Ile Val Phe Glu
85 90 95

Thr Leu Leu Pro Leu Lys Asn Lys His Leu Asp Thr Leu Ile Leu
100 105 110

<210> 65

<211> 341

<212> DNA

<213> *E. hirae*

<400> 65

atcgcatgta ataccgctac tgcggttgct ttagaagaaa tcaaggcggc acttcctatt
60

ccagtcattg gtgtgatctt acctgggaca agagcagctg ttaaacaac aagaaataaa
120

caagtaggga ttatcggaac cctcggaacg atcaaaagtc gtgcttatga aacagcgctg
180

aaaacgaagg tacctgaact tgccgtgact agtttggtt gtccaaaatt cgtttcggta
240

SEQUENCE LISTING.txt

gtggaaagta atgaatatca ttcgtcagtg gcaaaaaaaaaa tcgttgccca gacactagcg
300

ccattggtta ctaagaaaat cgatacgttg attttaggtt g 341

<210> 66

<211> 111

<212> PRT

<213> E. hirae

<400> 66

Ala Cys Asn Thr Ala Thr Ala Val Ala Leu Glu Glu Ile Lys Ala Ala
1 5 10 15

Leu Pro Ile Pro Val Ile Gly Val Ile Leu Pro Gly Thr Arg Ala Ala
20 25 30

Val Lys Gln Thr Arg Asn Lys Gln Val Gly Ile Ile Gly Thr Leu Gly
35 40 45

Thr Ile Lys Ser Arg Ala Tyr Glu Thr Ala Leu Lys Thr Lys Val Pro
50 55 60

Glu Leu Ala Val Thr Ser Leu Ala Cys Pro Lys Phe Val Ser Val Val
65 70 75 80

Glu Ser Asn Glu Tyr His Ser Ser Val Ala Lys Lys Ile Val Ala Gln
85 90 95

SEQUENCE LISTING.txt

Thr Leu Ala Pro Leu Val Thr Lys Lys Ile Asp Thr Leu Ile Leu
100 105 110

<210> 67

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 67

aaatagtcac atgaaaatag gcgtttttg 29

<210> 68

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 68

agaattctat tacaatttga gccattct 28

<210> 69

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 69

gcgaattcga tcagaatttt ttttct 26

SEQUENCE LISTING.txt

<210> 70

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 70

ataagtactt gtgaatctta tactag

26

<210> 71

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 71

aaaatgctag taatcgcatg taataccgc

29

<210> 72

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 72

tgggtacaac ctaaaatcaa cgtatc

26

<210> 73

<211> 765

<212> DNA

SEQUENCE LISTING.txt

<213> *Aquifex pyrophilus* NA sequence

<400> 73

atgaagatag gtatctttga cagtgggtgtg gggggactta ctgttctaaa ggctataaga
60

aatagataca gaaagggttga tatagtatac ctcggtgata ccgcaagggt tccctacggc
120

ataagggtcta aagatacgat aatcagatac tcccttgagt gtgcggggctt tttaaaggat
180

aagggtgttg atataatcgt cgttgcctgc aataccgcaa gtgcttacgc tcttgaacgt
240

ttaaagaaag agataaacgt tcccgtttc ggcgttattg aaccgggggt taaagaagcc
300

ttaaaaaagt caaggaataa aaaaatagga gttataggaa ctcctgcaac cgtaaaaagc
360

ggagcctacc agagaaagct tgaagagggg ggagctgatg ttttgcaaa ggcctgtccc
420

ctattcgttc cccttgcgga ggaagggtctc cttgaggggg agataacaag aaagggttga
480

gaacactacc ttaaggagtt taaaggtaag attgatactc tgattttagg atgtacccat
540

tacccccttc ttaaaaagga gataaagaag ttttgaggag acgttgaagt cgttgactct
600

tccgaagccc tttcccttc cctccataac ttataaagg acgatgggtc ctcacccctt 660

gagttatfff ttacggacct ttcccaaatt ctccagtttt tgattaaatt aatactcggg 720

SEQUENCE LISTING.txt

agggattacc cggtaaaact tgcggagggg gtttttacac attaa

765

<210> 74

<211> 262

<212> PRT

<213> *Aquifex pyrophilus* amino acid sequence

<400> 74

Met Lys Ile Gly Ile Phe Asp Ser Gly Val Gly Gly Leu Thr Val Leu
1 5 10 15

Lys Ala Ile Arg Asn Arg Tyr Arg Lys Val Asp Ile Val Tyr Leu Gly
 20 25 30

Asp Thr Ala Arg Val Pro Tyr Gly Ile Arg Ser Lys Asp Phe Thr Thr
 35 40 45

Ile Ile Arg Tyr Ser Leu Glu Cys Ala Gly Phe Leu Lys Asp Lys Gly
 50 55 60

Val Asp Ile Ile Val Val Ala Cys Asn Thr Ala Ser Ala Tyr Ala Leu
65 70 75 80

Glu Arg Leu Lys Lys Glu Ile Asn Val Pro Val Phe Gly Val Ile Glu
 85 90 95

Pro Gly Val Lys Glu Ala Leu Lys Lys Ser Phe Thr Arg Asn Lys Lys
 100 105 110

SEQUENCE LISTING.txt

Ile Gly Val Ile Gly Thr Pro Ala Thr Val Lys Ser Gly Ala Tyr Gln
115 120 125

Arg Lys Leu Glu Glu Gly Gly Ala Asp Val Phe Ala Lys Ala Cys Pro
130 135 140

Leu Phe Val Pro Leu Ala Glu Glu Gly Leu Leu Glu Gly Glu Ile Thr
145 150 155 160

Arg Lys Val Val Glu His Tyr Phe Thr Leu Lys Glu Phe Lys Gly Lys
165 170 175

Ile Asp Thr Leu Ile Leu Gly Cys Thr His Tyr Pro Leu Leu Lys Lys
180 185 190

Glu Ile Lys Lys Phe Leu Gly Asp Val Glu Val Val Asp Ser Ser Glu
195 200 205

Ala Leu Ser Leu Ser Leu His Asn Phe Ile Lys Asp Asp Gly Ser Ser
210 215 220

Ser Leu Glu Leu Phe Thr Phe Phe Thr Asp Leu Ser Pro Asn Leu Gln
225 230 235 240

Phe Leu Ile Lys Leu Ile Leu Gly Arg Asp Tyr Pro Val Lys Leu Ala
245 250 255

SEQUENCE LISTING.txt

Glu Gly Val Phe Thr His
260

<210> 75
<211> 19
<212> DNA
<213> primer

<400> 75
tgatgcaaca aatggacga 19

<210> 76
<211> 18
<212> DNA
<213> primer

<400> 76
ttacaatttg agccattc
18